MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

MASTER OF CS (SOFTWARE ENGINEERING AND SOFTWARE ARCHITECTURE)
TRIMESTER 1521

TQA7011 – SOFTWARE QUALITY ASSURANCE AND TESTING

(All sections / Groups)

20th JANUARY 2016
8.00pm-10.00pm
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages (including cover page) with 4 Questions only.

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please print all your answers in the Answer Booklet provided.

Question 1

(a) Explain in details one of the factors which affect defect detection in software products with other industrial products. (3 marks)

(b) Explain the relationship between software quality assurance and software engineering. (2 marks)

(c) According to McCall's model, Usability is one of the software quality factors which are included in the product operation category. Describe this quality factor in details with an example. (3 marks)

(d) Identify the difficulties in performing a major contract review. (2 marks)

Question 2

(a) Static testing and dynamic testing are complementary methods, as they tend to find different types of defects effectively and efficiently. What are the types of defects that are easier to be found during static testing? List down THREE types of them. (3 marks)

(b) Inspection is the most formal review type. Depending on the organization and the objectives of a project, inspections can be balanced to serve a number of goals. Suggest the focus of inspections for the given scenarios as below: (2 marks)

(i) If the time to market is extremely important

(ii) In a safety-critical market

(c) Differentiate among the test plan, the test design specification and the test procedure specification. (2 marks)

(d) Describe the concepts of white box testing. Discuss the advantages and disadvantages of performing white box testing. (3 marks)

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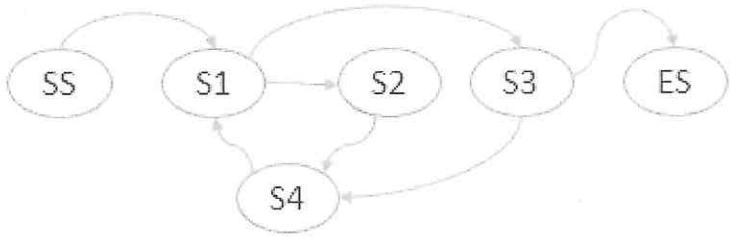
Question 3

(a) Given the following code, identify the smallest number of test cases required to provide 100% branch coverage. (2 marks)

```
If(x>y) x=x+1;
else y=y+1;
while(x>y)
{
y=x*y; x=x+1;
}
```

(b) Given the state diagram as below, generate the test case which has the minimum series of valid transitions to cover every state. (2 marks)



(c) If multiple testing techniques are available, can they be combined or integrated for better effectiveness or efficiency? Justify your answer. (3 marks)

(d) Suggest THREE types of functionality testing techniques which are applicable to web testing. (3 marks)

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Question 4

(a) Identify TWO benefits of using test automation tool for software testing over manual testing. (2 marks)

(b) You are working as a tester on a project to develop a point-of-sales system for grocery stores and other similar retail outlets. Give an example of a product risk for such a project. (2 marks)

(c) Explain how the capability maturity model integration (CMMI) framework is able to assist a software company in achieving and improving quality throughout the organization. (2 marks)

(d) Recent trend in Total Quality Management (TQM) includes Ethics, Integrity and Trust as the foundation for successful implementation of TQM in an organization. Justify the importance of these three elements in contributing towards the successful implementation of TQM in an organization. (4 marks)

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